LYCEE EL HOREYA LANGUAGE SCHOOL

MATHEMATICS DEPARTMENT



WORKSHEETS

PRIMARY SIX

SECOND TERM

2016-2017

NAME:……………………………………………………………

CLASS:……………………………………………………………

Unit (1)
Integers

Remarks:
1) The set of counting numbers: C = { 1 , 2 , 3 , … }
2) The set of natural numbers: N = { 0 , 1 , 2 , 3 , … }

Set of integers → Z

Z = {……., -3, -2, -1, 0, 1, 2, 3, ……..}

Z
Z^- { 0 } Z^+
N

Z consists of:

Z^+ = {1, 2, 3, ……….} → Set of positive integers.

Z^- = { ……, -3, -2, -1 } → Set of negative integers.

{ 0 } = Set of zero. (The number zero is not a positive nor negative integer.)

($0 \notin Z^+$ and $0 \notin Z^-$)

Remarks:

1) $Z = Z^- \cup Z^+ \cup \{ 0 \}$ or $Z = Z^- \cup N$

2) $Z^* = Z^- \cup Z^+$

3) Z is an infinite set.

Important exercise:

$Z \cup Z^+ =$ $Z \cap Z^+ =$ $N - Z^+ =$

$Z^- \cup Z =$ $Z \cap Z^- =$ $N - Z^- =$

$Z^- \cup Z^+ =$ $Z^- \cap Z^+ =$ $N - Z =$

$Z \cup N =$ $Z \cap N =$ $Z - Z^+ =$

$Z - Z^- =$ $Z - N =$



Remarks:

1) The zero number is smaller than any positive number and greater than any negative number. $0 > 5$ and $0 < 5$.

2) The least positive integer is ………..

3) The greatest positive number is …………………………….

4) The least negative integer is ………..

5) The greatest negative number is …………………………….

Exercise

1) **Complete:**

a) $N = \{0\} \cup$ …
b) $Z =$ … $\cup$ … $\cup$ …
c) $Z =$ … $\cup$ …
d) $Z^+ \cap Z^- =$ …
e) $Z^+ - Z^- =$ …
f) $Z - N =$ …
g) $N - Z^+ =$ …
h) $N - \{0\} =$ …
i) $Z - Z^+ =$ …
j) $Z^+ \cap N =$ …
k) $Z^- \cup Z^+ =$ …
l) $Z^- \cap Z =$ …

2) **Complete using $\in, \notin, \subset, \not\subset$:**

a) -3 … Z^+
b) -2 … Z
c) $\{2\}$ … Z^+
d) $\{0\}$ … Z^+
e) -5 … Z
f) $\{3, 4\}$ … Z
g) -9 … Z^-
h) $\{0\}$ … Z^-
i) $\frac{1}{5}$ … Z
j) $\{-5\}$ … Z^-
k) N … Z^+
l) 0 … N
m) N … Z
n) Z^+ … N
o) Z^+ … Z
p) Z^- … Z
q) $\{0\}$ … N
r) φ … Z
s) 0 … Z^+
t) 0 … Z^-
u) $\{-1, 1, 2\}$ … Z^+
v) $\{-45, -6\}$ … Z^-
w) $\{-1, 0, 1\} \cap Z^+$ … N
x) -1.2 … Z^-
y) $\{-2, 0, 2\} \cup \{-1, 1\}$ … Z
z) $Z^+ \cup Z^-$ … Z

3) **Choose the correct answer:**

a)The set of all non-negative integers is …

(1) { 0 }　(2) Z^-　(3) Z^+　(4) N　(5) Z*

b)The set of all non-positive integers is …

(1) { 0 }　(2) $Z^- \cup \{ 0 \}$　(3) Z^+　(4) N　(5) Z*

c)The set of neither positive nor negative integers is …

(1) { 0 }　(2) Z^-　(3) Z^+　(4) N　(5) Z*

d)The smallest positive integer is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

e) The greatest negative number is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

f) The smallest prime number is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

g) The smallest non-negative integer is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

h) The greatest non-positive integer is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

i) The smallest odd prime number is …

(1) 0　(2) - 1　(3) 1　(4) 2　(5) 3

4) List the following sets and represent them on the number line:

a) $X = \{ x : x \in Z , x > -2 \}$

....

....

....

b) $M = \{ m : m \in Z , m \leq -1 \}$

....

....

c) $G = \{ g : g \in Z^{-} , -2 \leq g \leq 5 \}$

....

....

5) Find :

a) $| -3 |$ = …….. b) $| -8 | + | -2 |$ = ……. c) $| -4 | + | 3 |$ = …

d) $| -100 | - | -70 |$ = …….. e) $| -4 | + | 4 |$ = ……

6) Determine the value of x in the following cases :

a) $|x| = 10$ b) $|x| = 24$ c) $|-7| = x$

Ordering and comparing integers

1) Compare using < or >

a) 3 ... 0
b) - 3 ... - 2
c) 1 ... - 1
d) - 9 ... 12
e) - 5 ... 0
f) - 3 ... - 8
g) 3 ... 8
h) - 7 ... - 8
i) - 2 ... - 7
j) - 2 ... 1
k) 0 ... 4
l) 3 ... - 2
m) -9 ... - 5
n) - 11 ... - 15

2) Arrange in an ascending order:

a) - 1 , 7 , 5 , - 8 , 0 , - 2 , 3

....

....

b) - 24 , 42 , 15 , - 17 , 13 , - 8 , 30

....

....

3)Arrange in an descending order:

a) 7 , 10 , - 4 , - 9 , - 1 , 0 , 5

....

b) - 2 , - 7 , 3 , - 5 , 7 , 8 , - 3

....

4) Put < , = or > :

a) | -3 | .... | -4 |
b) | -5 | .... - | 5 |
c) | 4 | + | -4 | 0
d) | -3 | - | 3 | 0

Operation on Z
Addition and subtraction:

Note:

Consider +ve integers are profit.

Consider -ve integers are loss.

$-a + a = 0$	or	$a + (-a) = 0$

1)Complete:

a) $5 + 7 =$ b) $-5 - 7 =$

c) $-5 + 7 =$ d) $5 - 7 =$

e) $-3 + 0 =$ f) $0 - 3 =$

2)Complete:

a) $(-2) + \ldots = 5$

b) $(-3) + \ldots = -7$

c) $\ldots + (-4) = -1$

d) $\ldots + (-10) = 0$

e) $(-3) + \ldots = 2$

f) $(-5) - \ldots = -16$

g) $\ldots - 6 = -14$

h) $\ldots + 20 = -7$

Additive inverse

a) The additive inverse of a is (- a)

b) The additive inverse of Zero is Zero

c) If a is the additive inverse of b, then $a - b = 0$

d) If (-a) is the additive inverse of a , then $-(-a)$

3) Write the additive inverse of the following numbers:

a) 8 …………………… b) (- 4) ……………………

c) 0 …………………… d) - (- 1) ……………………

e) - (6) …………………… f) - (m + n) ………………

g) X …………………… h) - x + y ……………………

i) - 6 – y = …………………… j) (- 7) + 3 ……………………

4) **Subtracting integers:**

$8 - 5 =$ $5 - 8 =$

$10 - 7 =$ $7 - 10 =$

$3 - 1 =$ $5 - 2 =$

$8 - 10 =$ $9 - 15 =$

$5 - 0 =$ $0 - 3 =$

$(-3) + 3 =$ $5 + (-5) =$

5)If $x = -3$, $y = 5$ and $z = -2$ then find

$x + y + z$

……………………………………………………………………………………………

$x - y + z$

……………………………………………………………………………………………

$y - z + x$

……………………………………………………………………………………………

$(x + y) - z$

……………………………………………………………………………………………

6)If $a = 3$, $b = -2$, $c = 4$ and $d = -1$ then find the numerical value of

$a + b - c + d$

……………………………………………………………………………………………

$(a - b) + c + d$

……………………………………………………………………………………………

Multiplying and dviding integers

Multiplication

+ve × +ve = +ve

+ve × -ve = -ve

-ve × -ve = +ve

-ve × +ve = -ve

1)Complete

a) $4 \times 3 =$

b) $4 \times -3 =$

c) $-4 \times 3 =$

d) $-4 \times -3 =$

Division

+ve ÷ +ve = +ve

+ve ÷ -ve = -ve

-ve ÷ -ve = +ve

-ve ÷ +ve = -ve

1)Complete

a) $6 \div 2 =$

b) $6 \div (-2) =$

c) $(-6) \div 2 =$

d) $(-6) \div (-2) =$

2) Complete

a) $9 \times \ldots = -9$

b) $\ldots \div (-2) = 2$

c) $12 \div \ldots = -1$

d) $56 \div \ldots = -8$

e) $\ldots \times (-2) = -26$

f) $(-5) \times \ldots =$

3)If a = - 1, b = 1, and c = - 6, then find the value of each of the following:

(1) ab ……………………………………………………………………

(2) bc ……………………………………………………………………

(3) ac ……………………………………………………………………

(4) (- a) × (- b) × (- c)

……………………………………………………………………

(5) 2 a – c ……………………………………………………………

……………………………………………………………………

(6) 2 b + 3c ……………………………………………………………

……………………………………………………………………

(7) b c ÷ (- 2) …………………………………………………………

(8) (a + b) ÷ c …………………………………………………………



Repeated multiplication

Power or index

Example

$5 \times 5 \times 5 = 5^3$

Base   Index or power

It is also read as 5 to the power 3

Remark

$a \times a \times a \times ,,,,,,,,, = a^n$

where $a \in Z - \{0\}$

and $n \in N$

Compete

a) $-6 \times -6 \times -6 \times -6 =$

b) $7 \times 7 \times 7 \times 7 \times 7 \times 7 =$

If the power is an even number, then the result will be positive

c) $3^6 =$

d) $(-4)^4 =$

If the power is an odd number, then the result will be negative if the base is negative number

e) $-(7)^3 =$

f) $9^5 =$

Find the result of each then add or subtract

g) $5^3 + 4^5 =$

h) $6^3 - 4^4 =$

If one base has two powers then multiply the powers

i) $(3^4)^3$

j) $(3^3)^4$

Multiplication by adding indices

Example:

$5^4 \times 5^3 = 5^{4+3} = 5^7 =$

Remark

$a^m \times a^n = a^{m+n}$

where $a \neq 0$ and $n, m \in Z^+$

Complete:

a) $3^4 \times 3^4 =$ …………….= ……………

b) $4^3 \times (-4)^2 =$ ………………………… = ……………………

c) $(-5)^2 \times (-5)^3 =$ ……………………………. =

……………………………………………

d) $4^4 \times (-4)^3 =$ …………………………… = ………………………………….

Division by subtracting indices

Example:

$5^4 \div 5^2 = 5^{4-2} = 5^2 =$

Remark

$a^m \div a^n = a^{m-n}$

where $a \neq 0$ and $m > n$

Complete:

a) $2^4 \div 2^3 =$ ……………. = ……………

b) $4^5 \div (-4)^2 =$ ………………………… = ……………………

c) $(-5)^2 \div (-5)^3 =$ ……………………………. =

……………………………………………

d) $\frac{3^6}{3^2}$ = ………………………… = ………………………………

$a^m \div a^m = a^{m-m} = a^0 = 1$

e) $\frac{6^5}{6^5}$ = ……………………= ……………………

1) **Simplify each of the following into the simplest form:**

(a) $\frac{a^5 \times a^3 \times a^7}{a^4 \times a^2 \times a^9} =$ ……………………………………………………………………

……………………………………………………………………………………

……

(b) $\frac{(-2)^7}{(-2)^5} + \frac{(-3)^4}{(-3)^3} =$

……………………………………………………………………

……………………………………………………………………

(c) $\frac{(-3)^4 + (-3)^3}{(-3)^2 + (-3)^2} =$

……………………………………………………………………

……………………………………………………………………

(d) $\frac{(-5)^4 \times (5)^2 \times (-5)^6}{(-5)^5 \times (-5)^7} =$ ……………………………………………………………………

(e) $\frac{x^5 \times x \times x^4}{x^2 \times x^6} =$ ……………………………………………………………………

Unit (2)
The equation and inequality
Of the first degree

1. Find the solution set of each of the following equations:

a) $x - 7 = 0$

……………….

……………….

b) $x + 4 = -2$

……………….

……………….

c) $x + 15 = 2$

……………….

……………….

……………….

d) $4x + 20 = 0$

……………….

……………….

……………….

e) $5x + 14 = 4$

……………….

……………….

……………….

f) $3x - 6 = 9$

……………….

……………….

……………….

g) $2x + 5 = x + 9$

……………….

……………….

……………….

h) $4x - 6 = x - 15$

……………….

……………….

……………….

i) $3(x - 2) = 5x - 10$

……………….

……………….

……………….

j) $4(x + 1) = 2(x - 1)$

……………….

……………….

……………….

k) $x(x + 3) - x(x - 2) = 25$

……………….

……………….

L) $12 - 2x = 20$

……………….

……………….

2. Find the solution set of the equation $2x + 7 = 1$

a) In Z

………………
………………
………………

b) In N

………………
………………
………………

3) a) Find in Z the solution set of each of the following :

i) $2x - 3 = 7$

………………
………………
………………

ii) $1 - 3x = 4$

………………
………………
………………

iii) $5x - 1 = x + 19$

………………
………………
………………

v) $2(x - 3) = 10$

………………
………………
………………

vi) $2(3x - 2) = 5x + 2$

………………
………………
………………

vii) $3(x - 4) = 2(2x - 1)$

………………
………………
………………

b) Find the solution set of the equation $-1 - 2x = 2x - 9$

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

Application of solving equations of first degree in one unknown

1) If we add 10 to a number, Then the result is the additive inverse of the same number . Find this number.

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

2)If we add 8 to three times a number , Then the result is the additive inverse of the same number . Find this number .

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

3) If the sum of three odd consecutive integers is - 45 . Find these integers.

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

4)If we add twice a number to 12 , Then the result is less than the additive inverse of this number by 6 . Find this number.

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

5) If the ratio between the two dimension of a rectangle is 3 : 5 and its perimeter is 80 cm . Find its area.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

6). If the length of a rectangle exceeds twice its width by 2 cm and its perimeter is 34 cm , Then find its area.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

7)If we add a number to twice its additive inverse, Then the result is 10 , Then find this number .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

8)If the sum of three consecutive integers is 42 , Then find each number .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

9) If the sum of three consecutive even integers is 30 , Then find each number .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

10)If the age of a man is more than the age of his son by 28 years and the sum of their ages now is 48 years . Find the age of each of them .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

11)If the price of a pen is more than the price of the pencil by P.T. 50 and the sum of two pens and a pencil is P.T. 325.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………



II . SOLVING INEQUALITIES

1. Find in Z the solution set of each of the following:

a) $-x < 2$

……………………
……………………
……………………

b) $-2 < -x$

……………………
……………………
……………………

c) $-2x < 0$

……………………
……………………
……………………

d) $x + 1 < 4$

……………………
……………………
……………………

e) $x - 2 \leq 3$

……………………
……………………
……………………

f) $3x \leq -12$

……………………
……………………
……………………

g) $-15 \leq -5x$

……………………
……………………
……………………

h) $2x + 3 \leq 7$

……………………
……………………
……………………

i) $3x - 5 \geq -11$

……………………
……………………
……………………

j) $-1 < x + 2 < 3$

……………………
……………………
……………………

k) $1 \leq 2x + 1 \leq 3$

……………………
……………………
……………………

l) $5 < 7 - x \leq 8$

……………………
……………………
……………………

m) $-2 < 4 - 3x < 10$

…………………

…………………

…………………

n) $-5 \leq 3x - 2 < 4$

…………………

…………………

…………………

2. If $X = \{ a : a \in Z \text{ and } -5 \leq a < 4 \}$, Then find the solution set of each of the following :

a) $x < 0$

…………………

…………………

…………………

b) $-1 < x + 1 < 4$

…………………

…………………

…………………

c) $-3x < 9$

…………………

…………………

…………………

d) $-2x \leq -6$

…………………

…………………

…………………

e) $-7 \leq x \leq 1$

…………………

…………………

…………………

f) $-8 \leq 3x - 2 \leq 4$

…………………

…………………

…………………

3. Complete:

a) If $x < y$ and $y < Z$, Then x ……… z

b) If $x < y$, Then $a x < ay$ under a condition ………………

c) If $x < y$, Then $a x > ay$ under a condition ………………

4. Find the solution set of the inequality $2x - 7 \leq 2$ where $x \in Z$, Then represent the solution set on the number line .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

5. Find the solution set of the inequality $-1 \leq 2x + 3 \leq 3$ where $x \in Z$, Then represent the solution set on the number line .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

6. Find the solution set of the inequality $-5 \leq 1 - x \leq 0$ where $x \in Z$, Then represent the solution set on the number line .

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

7) Complete:

i) If $x \in N$, Then the solution set of the inequality $x > -3$ is ……………………

ii) The solution set of the inequality $-2 < -x \leq 1$ where $x \in Z$ is ………………

8)Find the solution set of each of the following inequalities ($x \in Z$) :

i) $2x - 1 < 9$

………………
………………
………………

ii) $1 - 3x \geq 4$

………………
………………
………………

iii) $2x - 3 \leq 7$

………………
………………
………………

iv) $5x - 1 > x + 19$

………………
………………
………………

v) $2(x - 3) \geq 10$

………………
………………
………………

vi) $2(3x - 2) = 5x + 2$

………………
………………
………………

vii) $3(x - 4) = 2(2x - 1)$

………………
………………
………………

iix) $-2 \leq 3x - 8 < 1$

………………
………………
………………

ix) $5 < 2 - 3x \leq 17$

………………
………………
………………

x) $4 < 2x - 6 < 6$

………………
………………
………………

9) Find the solution set of the inequality $1 - 5x \geq -4$ where $x \in Z$, Then represent the solution set on the number line .

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

10) Find the solution set of the inequality $-2 < x - 7 \leq 2$ where $x \in Z$, Then represent the solution set on the number line.

....

....

....

....

....

Unit (3)

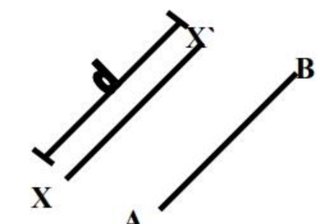
Geometry and measurement

TRANSLATION

Definition:

The translation (AB) transfers x to x` at a distance AB

in direction of $\overrightarrow{AB}$



Note : a) x x` = A B

b) $\overline{xx`}$ // $\overline{AB}$

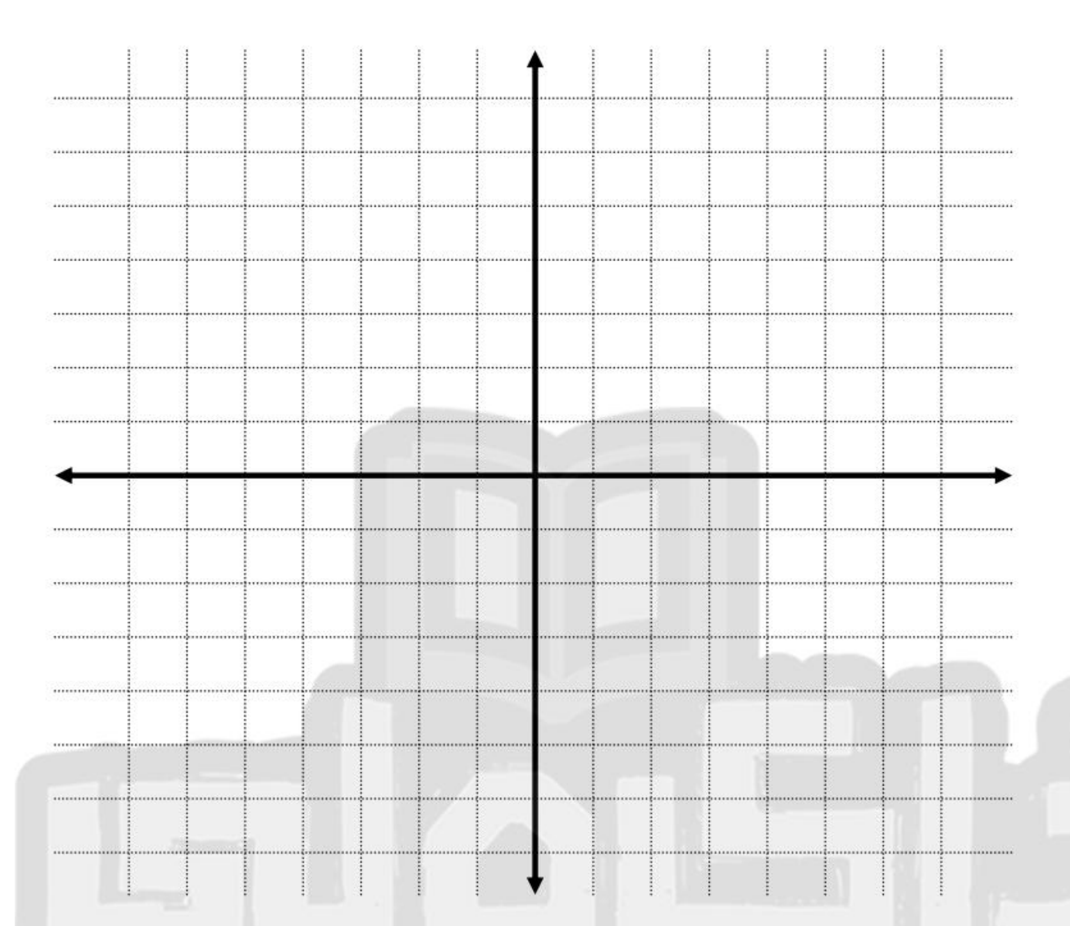
Rule : Image = Point + Translation

I = P + T

1 . Complete the following table :

The point	Translation	Image
(2 , 3)	(4 , - 1)	……………
(1 , - 4)	(- 2 , 0)	……………
……………	(3 , 5)	(7 , 2)
……………	(2 , - 2)	(3 , 1)
(1 , - 3)	……………	(1 , 1)

2 . Draw the triangle ABC where A = (- 1 , 3) , B = (1 , 5) and C = (2 , 4) , Then draw its image under the translation (3 , - 2)



3 . Complete :

a) If A = (2 , 4) and B = (- 3 , 1) , Then the translation (AB) equals ....

b) The translation " a " units in the positive direction of the X-axis is ....

c) The translation " a " units in the negative direction of the Y-axis is ....

d) The image of the point (1 , 2) under the translation (- 5 , 0) followed by The translation (2 , 3) is ....

e) The translation (- 3 , 0) is a displacement in the direction of the ......-axis and of distance equals ....

f) The image of the point (2 , - 3) by translation (AB) where A = (1 , 2) and B = (4 , - 3) is ....

Area of circle

Circumference of circle = $\pi \times D$

$= \pi \times 2R$

Area of circle = $\pi \times r^2$

Ex :

1) A circle its diameter is 14 cm , calculate its area

……………………………………………………………………………………………
……………………………………………………………………………………………

2) A circle of area 64 cm² , find its circumference

……………………………………………………………………………………………
……………………………………………………………………………………………

3) A circle of circumference 44 cm calculate its area

……………………………………………………………………………………………
……………………………………………………………………………………………

L.S.A and T.S.A

Of cube

L.S.A = Area of one face x 4
= S x S x 4
Area of one face = L.S.A ÷ 4
Side = √ Area

With a lid
T.S.A = Area of one face x 6
= S x S x 6
Area of one face = T.S.A ÷ 6
Side = √ Area
Without a lid
T.S.A = Area of one face x 5
Area of one face = T.S.A ÷ 5

Of a cuboid

L.S.A = Perimeter of the base x Height

Perimeter of the base = L.S.A ÷ H
H = L.S.A ÷ Perimeter
With a lid
T.S.A = L.S.A + 2 x Area of the base

without a lid
T.S.A = L.S.A + Area of the base

L.S.A and T.S.A

1) Calculate the total area and lateral area of each of the following cuboids :

a) 10 cm , 8 cm , 1 cm

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

b) 3.5 m , 0.7 m , 0.7 m

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

c) 5 m , 3 m , 2 m

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

d) 2 m , 150 cm , 12 dm

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

e) 6 cm , 23 mm , 14 mm

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

2) Calculate the total area and lateral area of each of the following cubes :

a) 3 cm

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

b) 5m

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………

c) 2.1 cm

……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………………

d) 3.5 dm

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

3) Calculate the lateral & total surface area of a cuboid of dimensions 40 cm , 30 cm and 50 cm

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

4) A cuboid of square base with side length 20 cm and its height length equals 40 cm: calculate its:

i) Lateral surface area.
ii) Total surface area.

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

5)A cuboid box without a lid its base dimensions are 2.5 meters and 1.5 meters. Its height is 80 cm. Find its total surface area.

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

6)Find the lateral and total area of each:
a) Cuboid of dimensions 8 cm, 50 mm, 10 cm.
b) cube of edge length 1.6 m.
c) cuboid of square base of side length 10 cm and height is 15 cm.

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

7) A cube of sum of edges 54 cm, Find:
a) Its total surface area.

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………

8) The perimeter of one face of a cube is 60 cm, find :
a) The length of its edge .
b) The area of one face .
c) The lateral area.
d) The total area .

………
………
………
…………………………………………………
………
………
………
………
………
………………….

9) A cuboid box without a lid of dimensions 2cm, 1.5m, 1.2m it is required to cover its inner faces by a metallic sheet of cost L.E.2 per squared meter . find the cost of the sheets .

………
………
………
…………………………………………………….

10) A swimming pool of dimensions 15 m , 12 m and 225 cm in the form of a cuboid . We need to cover its inner walls and the bottom by a ceramic squared tiles of side length 20 cm. How many tiles are needed ?

………
………
………
…………………………………………………….

11) A room of dimensions 5 m , 4 m and 30 dm. Find the lateral surface area of this room . If we want to cover the floor with a carpet of L.E 22.5 per meter . Find the price of the carpet

………
………
………
…………………………………………………….

12) Find the cost of painting the inside of truck of internal dimensions 3 m , 1.5 m and 80 cm. If one squared meter of paint cost L.E 10

………
………
………
…………………………………………………….

13) if the lateral area of a cube is 16 m^2 . what is its total area?

………
………
………
……………………………………………

14) If the total area of a cube is 216 cm^2 . Find its lateral area and its volume

………
………
………
……………………………………………

15) A cuboid shaped room of squared floor of side length 4m and height 3m.If the door of the room is 1m wide and 2m height and there is a window of dimensions 250 cm, 120 cm. If it is required to paint this room .Find the area required to paint and the cost of painting if 1m^2 of paint costs 5l.E.

………
………
………
……………………………………………

16) A cube of side length 5 cm . Find the ratic between its lateral area and total area.

………
………
………
……………………………………………

17) A rectangular sheet of dimensions 180 cm,100 cm was used to produce cubic boxes of side length 20 cm.
Find the area of card board that was not used.

………
………
………
……………………………………………

Unit (4)

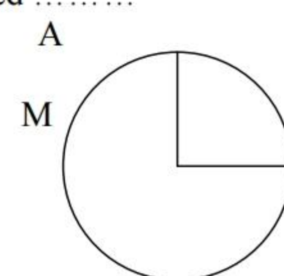
Statistics and probability

Pie charts

1) Complete :

a) Any angle with a vertex on the centre of the circle is called ………

b) In the opposite figure :
If m(∠AMB) = 90° , then the area of the smaller circular sector AMB = ……… the area of the circle



c) The opposite figure
Shows Hanan`s distribution of time Studying many subjects during 4 Hours in a day.
Then the number of hours which Hanan spent studying Maths = ….. hours

d) If the percentage 25% can be represented by a circular sector , then the mesure of its central angle is ……… °

e) Every circular sector has an angle , its vertex is the center of the circle , then this angle is called ……………

f) The circular sector is a part of surface of a circle lying between ………..

g) The measure of the centeral angle of the circular sector 35% = ……….°

h) In the opposite figure :
The pie chart shows the percentage of 200 Pupils in El-Areesh school who take part in some school activities
Complete each of the following :

1) The percentage of sporting activities
2) The number of pupils who takes part in the cultural activities = ……. Pupils

Lesson (2)

1) The following table represents the percentage of time which Waleed spent for studying some subjects. Represent these data using the pie chart

Subject	Arabic	Math	Science	SociaL studies
Percentage	30%	40%	20%	10%

2) The following table shows the population in the Egyption governorates represent the data by the pie chart

Governorate	Giza	Cairo	Alex.	Kalubia	Other gov.
Percentage	35%	40%	15%	4%	6%

Principles of Probability

Probability = $\frac{\text{Number of obtained outcomes}}{\text{Number of all possible outcomes}}$

. ……….. ≤ The probability of an event ≤ ………..

1) A single dice is tossed once. Observe the number on the top face then complete:

1. The probability of the event { 3 } is ………..
2. The probability of the event { 2 , 3 , 4 } is ………..
3. The probability of getting an even number is………..
4. The probability of getting an odd number is ………..
5. The probability of getting a number greater than 6 is …….
6. The probability of getting a number less than or equal 6 is ………..
7. The probability of getting a prime number is ……….
8. The probability of not getting a number greater than 4 is ………….

2) A box contains 4 white balls, 3 black balls and 5 red balls, they all identical. If one ball is drawn randomly, find the probability that the drawn ball is:

a) White b) Not red

3) A class has 20 girls and 30 boys, if a person is chosen randomly from this class, then what is the probability that the chosen person is a boy.

4) A box contains 4 white balls, 3 blue balls and 5 red balls. They are equal in size. A ball is drawn randomly from the box, find:

a) The probability that the drawn ball is white.
b) The probability that the drawn ball is red.
c) The probability that the drawn ball is blue.

5) A ball is drawn randomly from a box containing 3 red balls, 5 white balls and 6 blue balls and they are all identical. Find:

a) the probability that the drawn ball is red.

b) The probability that the drawn ball isn't red

1) If you flip a coin once, what the probability of the appearance of

a) Head   b) tail

7) Two distinct coins are tossed once. Find the probability of the appearance of :

a) Two heads.

b) At least one tail

c) Two similar faces.

d) Only one head.

8) Complete:

2. The probability of the impossible event is ………..

2. The probability of the sure event is …………..

3. ……….. ≤ The probability of an event ≤ ………..

4. If a coin is tossed once , then the probability of the appearance of a head is ……

5. If the probability of failing of a student is 0.2 then the probability of his success is ……

6. If the probability of the trees bearing fruit is 0.85 and there are 900 trees on a farm

then the expected number of trees bearing fruit is

……………………………………………………………………………………………………

……………………………………………………………………………………………………

7. A box contains 5 white , 7 red , 3 blue balls . A ball is drawn randomly from the box then the probability that the drawn ball is equal ………

9) Which of the following could be the probability of an event?

a) 1.2 b) – 0.4 c) 315 % d) 75 %

10) A ball is drawn randomly from a box containing 15 identical balls numbered from 1 to 15. Find the probability that the number written on the drawn ball is divisible by 7.

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

11) A ball is drawn randomly from a box containing 15 balls numbered from 1 to 15. Find the probability that the number written on the drawn ball is divisible by 3.

……………………………………………………………………………

……………………………………………………………………………

12) A box contains 15 identical balls numbered from 1 to 15. If a ball is drawn randomly, then find the probability that the number written on the drawn ball is:

a) Divisible by 5 b) Prime number

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

13) A ball is drawn randomly from a box containing balls numbered from 1 to 15. Find the probability that the number written on the drawn ball is:

a) Divisible by 4 b) Less than 16

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

14) Ten cards numbered from 1 to 10. If a card is chosen randomly from them, then find the probability that the chosen card has a prime number.

……………………………………………………………………………………………

……………………………………………………………………………………………

15) If a regular die is tossed once, and we notice the number on the upper face, then find the probability to get a number less than or equal 4.

……………………………………………………………………………………………

……………………………………………………………………………………………

16) The number of students in a class is 36. If the probability for the age of a student tobe under or equal 13 years is $\frac{1}{6}$ then find the number of students over 13 years old.

……………………………………………………………………………………………

……………………………………………………………………………………………

17) A box contains balls colored in red, green, blue and yellow. If the number of yellow balls is 20 and the probability of drawing a yellow ball is $\frac{1}{4}$. Find the total number of balls

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

18) A class has 40 pupils, 24 of them are boys. If the number of boys wearing glasses is 9. One day, one of the pupils was absent, find the probability that the absent pupil is: a) A boy,

b) A boy wearing glasses,

c) A boy not wearing glasses

19) <u>Choose the correct answer</u>:

a) A bag contains 3 red balls and 5 green balls. If a ball is drawn randomly then the probability that the drawn ball is green is …… [$\frac{5}{8}$, $\frac{3}{8}$, $\frac{7}{8}$, 1]

b) If you draw a ball randomly from a box containing 5 red balls, 7 white balls and 4 black balls, then the probability of drawing a black balls, is ……

[$\frac{5}{16}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{7}{16}$]

c) In a class of 32 student, there are 4 more boys than girls, if one of the students is chosen randomly, then the probability of this student being a girl is …… [$\frac{5}{16}$, $\frac{7}{16}$, $\frac{9}{16}$, $\frac{1}{4}$]

e) A stadium has 7 doors, then the probability that a man goes out through the door No. 4 is …… [$\frac{1}{4}$, $\frac{4}{7}$, $\frac{1}{7}$, $\frac{7}{4}$]